PARNASSIUS APOLLO IN GERMAN LITERATURE AND IN REALITY (LEPIDOPTERA: PAPILIONIDAE)[1]

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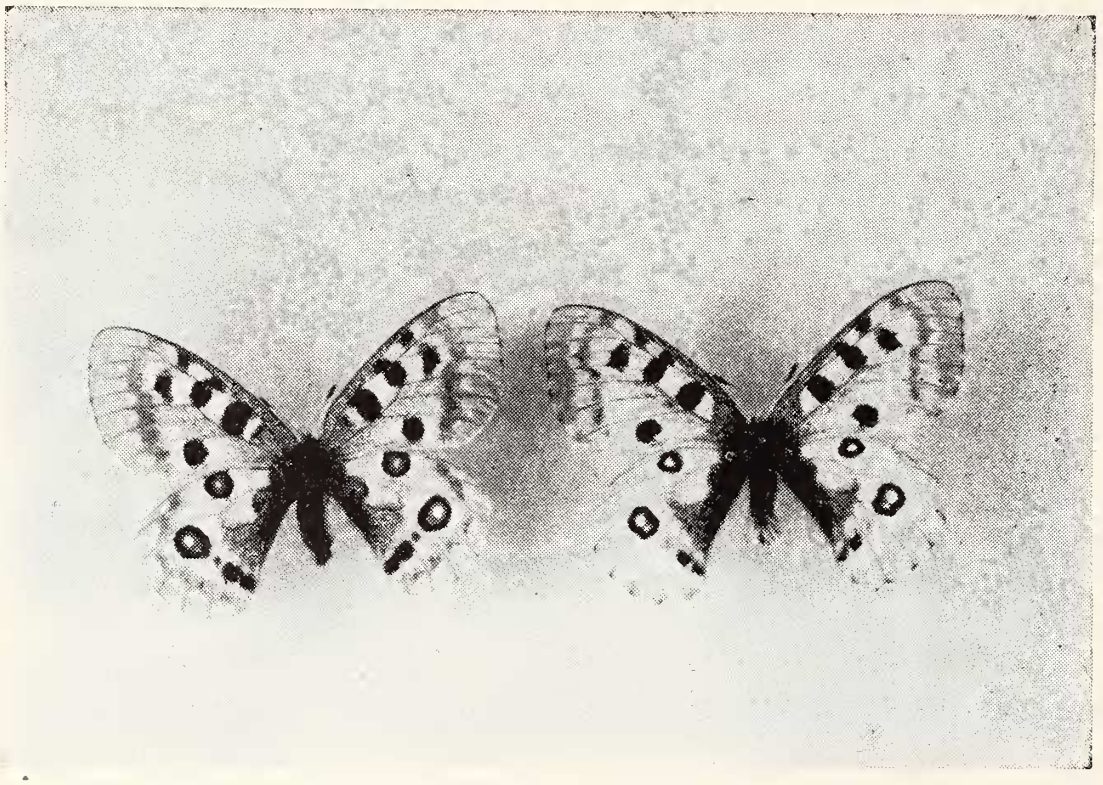
Abstract The principal characteristics of *Parnassius apollo* are given, a survey of the treatment this insect has received in German literature by Friedrich Schnack is made, and experiences in searching for and capturing this arctic relict in the Bavarian Alps are related.

THE INSECT

The Old World lepidopteron, *Parnassius apollo,* is a member of the large family of Papilionidae. The adult insects, male and female, are of medium



Parnassius apollo Linnaeus[2]
♀ left, ♂ right
¾ actual size.
♀ with chitinous abdominal pouch (Sphragis).
Pair netted August 1st 1958, at Königsbach Alm, Berchtesgaden, Upper Bavaria, at an elevation of 3,500 feet.

size and have a characteristic reduction of the anal area of the hind wings. The ground color of both sexes is a greyish white, shaded and dusted with black, fading into a complete translucency at the outer margin of the limbal area of the fore wings. In some female specimens this translucent outer margin extends into the posterior wings, but to a much lesser degree.

No scientifically correct description shall be made of this butterfly with

[1] This paper, in a somewhat different form, was presented at the Dec. 15, 1959 meeting of this society.

[2] Photo by Dr. Louis Marks, Fordham Univ.

its parchment-like wings. However, the most conspicuous characteristics of wing design are the five irregularly-shaped black spots on the fore wings, duplicated on the underside, and the two sun spots on the upper side of the hind wings. These two "suns" range in color from vermillion to a pale orange red. They have white nuclei and are black margined; they are mirrored on the underside of the hind wings, but are accompanied by six minor suns, all of them with black margins and some with white nuclei.

The entire body of the male *apollo* is profusely covered with greyish white hair, while in the female this is less prominent. The antennae are relatively short and have a gradually thickened club.

It is now painfully clear that this beautiful lepidopteron is on the verge of complete extinction. Its last stand habitats are the Carpathian mountain ranges of Czechoslovakia and Poland, and the Bavarian Alps of West-Germany. Recognizing this fact, each of these three countries, in 1961 and 1962, issued a colorful series of postage stamps depicting *Parnassius apollo* amongst other rare and showy butterflies.

IN GERMAN LITERATURE

This intriguing butterfly has found its niche in German literature at the hands of FRIEDRICH SCHNACK, a romantic lyricist, novelist, amateur entomologist and ardent observer of nature in all its phases. An intense love of nature and especially a deep compassion for the little creatures contained therein has equipped and induced this writer to wield a magic brush which enables him to paint verbally a legendary wonderland of fact and poetic imagination, a Utopian world garden amidst the grand achievements of our technological age.

Schnack was born in 1888 at Rieneck, a village near Wuerzburg on the Main river, in Upper Franconia. He has traveled widely throughout the world and has won several important literary awards and prizes. For a number of years he resided at Helleran, near Dresden, but at present lives at Sorengo, in the Tessino region of southern Switzerland. His collected works, published in 1951 by Koesel Verlag, Munich, Bavaria, consist of seven volumes of his most important novels and lyrics.

Three novels in which only diurnal and nocturnal lepidoptera represent the protagonists are: "Das Leben der Schmetterlinge" (The Life of the Butterfly, written in 1928 and republished 1953), "Die Kavaliere der Blumen" (The Courtiers of the Flowers, 1930), and "Aurora und Papilio" (Aurora and Papilio, 1956). It is asserted that Schnack, in composing "The Life of the Butterfly," was influenced by the Belgian dramatist, poet, and essayist MAURICE MAETERLINCK's philosophical nature stories: "La Vie des Abeilles" (The Life of the Honey-Bee, 1901), "L'Intelligence des Fleurs" (The Intelligence of Flowers, 1907), and "La Vie des Termites" (The Life of the Termite, 1937). In these stories Maeterlinck

expresses his belief in a "divine spirit" which is present in all animate as well as inanimate forms, and which protects life in an otherwise hostile and cruel world. If, however, this should prove to be a fallacy and an illusion, then man must find understanding, compassion and love in his heart for all creatures suffering in silence and in resignation.

Schnack's own work has grown out of genuine research, out of personal experiences and out of his irrepressible urge for creative writing. He dedicates this novel to "all the butterflies in the world," although they could not possibly all appear in this work, but most of the better known European butterflies and moths are presented in an ecological way; in their relationship to various landscapes, to the multitude of flowers, plants, bushes, trees and finally, to man himself. The writer takes us page after page on his field trips and exploratory journeys, to near and remote regions, to butterfly haunts in the fields, in the valleys and on the mountain heights. We learn of the food plants, observe the caterpillars in their various growing stages and virtually behold in our mind's eye the flights and the peculiar habits of the fully grown insects. Life cycles, eccentricities, courtships, mutual relations with other animals are wonderfully and accurately depicted and are substantiated time and again in Dr. Alexander Klots' up to date scientific presentation, "The World of Butterflies and Moths." But, since Friedrich Schnack is a literary writer addressing himself to non-scientific readers he intersperses his factualities with short stories and legends about butterflies, also with deep reflections about their scientific names and the Grecian mythology from which these names were borrowed. It seems that the entire Grecian Olympus descended upon "these souls of flowers," these "flying petals," "sylphs," and "elfins" of the insect world.

In "The Courtiers of the Flowers" (1930), his second novel on lepidoptera, Schnack penetrates still further with deep reflections into the mysteries and interrelationships of butterflies and flowers, and their dependence upon one another. He looks into the phenomenon of hibernation, the causes of aberations, and the mysterious urges that force some species of these frail beings into great migrations south from Germany to Italy and across the Mediterranean Sea into Africa. Being infected himself by the "wanderlust," he traveled to the Island of Madagascar, lured there by reports of a strange, king-sized Saturniid, the long-tailed Comet Moth (*Argema mitrei*). Armed with camera, net and ultra-violet lights he hunted, stalked and observed this unusually attractive insect.

A brilliant and intriguing account of the Comet Moth's adventures appears in his third novel, "Aurora and Papilio" (1956), under the caption of "Lonely Vigil and No Female," . . . female moth, that is. Other captions in this novel may give some hints on the contents: The Nymphs amongst the Butterflies, Pets of the Graces, Trojan and Greek Knights, Antenor and the Beautiful Madagscan Helena, The Prudent Females and

the Hermaphrodites and The Page of the Goddess of Love. Poetic imagination and intuition penetrate here beyond the visible world and establish an affinity with the transcendental. In this manner scientific research, poetry, and fiction fuse to form an inseparable union and create a wondrous realm of reality and higher poetic vision. To mention only one instance, butterflies are looked upon as the tender bearers of the iridescent colors of a lost world, reminding mankind of the magnificence of the colors which must have adorned the flowers in the Garden of Eden, before the gates of paradise closed forever behind our fallen first parents.

In the opening lines of "The Courtiers of the Flowers" the author professes that only love was able to write this novel; love for nature and the little creatures contained therein, as a true manifestation of a much greater love of divine origin. The poet takes a great delight in clothing this manifestation of divine love in a short simple legend, that butterflies are Sunday creatures. When the good Lord rested on the seventh day, He formed for His own enjoyment and diversion, the butterflies. He took morning-light, noon-day brilliancy, twilight glow and the shadows of the night. The yellow butterflies and all their variations He created in the morning; the Blues He made at noon; the copper-colored ones He formed in the evening; and the fallow ones with their crescents and dark, mysterious eye spots at night. And just as He covered the universe with flowers so He also set colored creatures in the air, flowers below and blossoms above. And the blossoms of the air nestled upon the flowers on the ground so that they could look upon one another in all their beauty. The flowers looked at the butterflies and the butterflies winked at the flowers; and a lovely friendship was founded for all eternity. (pp. 5–6).

How warmly and appreciatively these novels were received by the reading German public and even amongst Schnack's fellow-writers can be seen by the statement of the prominent novella and short-story writer WILHELM SCHAEFER, when "The Life of the Butterfly" made its first appearance in 1928. He said: "Friedrich Schnack might do whatever he wishes, he even could smash all of my windows, I would not be angry with him—for he wrote 'The Life of the Butterfly.' Future generations, yet to be born, will know his name. If there be a German perpetuity this book will have a place in it."

The critics have relegated these three novels into the category of "Naturdichtungen," nature stories. The author, however, insists most strenuously that they are authentic novels true to form. When, for instance, he was reproached for not having included descriptions of the internal structures of his charges he stated quite bluntly that in "The Life of the Butterfly" he did not write a textbook but a "Schmetterlingsroman," a novel on lepidoptera, "eine Dichtung," a poetic composition. "Aurora and Papilio" expressly bears the subtitle "Roman der Schmetterlinge," a butter-

fly novel.

In these epic compositions the artistry of the writer very wisely and cleverly uses the lives of the lepidoptera which belong to, and are "... the most peaceful and tender creatures of the animal kindgom" but, which are also "the most pursued game above and under the ground" as intriguing subplots which aim and lead visibly toward one great goal which is, the pious recognition of the magnificence and majesty of the Creator in His little creatures. This is, also, poetically restated by the author in the last couplet of a poem taken from an early book on butterflies:

"Studieret sie und lernt dabei,
Wie gross Gott auch im Kleinen sei"

which, in paraphrased English could be given as, "study them and learn from them how the infinite greatness of God is manifested in His little creatures." (Insel-Verlag, 1956).

Parnassius apollo appears in all three novels under such diverse captions as: "The Apollo Butterfly," "The Light Sylph of the Alps," and "The Trojan and Greek Knights." Linnaeus, who under the last two headings is called the "Nordic Father of Plants and Animals," dedicated this butterfly to Apollo, the Grecian god of light and poetic arts, and to his divine abode atop the 8,000 foot Parnassus mountain towering over ancient Delphi, regarded as sacred to Apollo and the Muses, the domain of poetry and literature. As a disciple of this youthful god of light his elfin creature carries the glowing symbols of light, two burning red sun spots on the upper surface of its hind wings and three on the underside. The white centers of these spots perhaps do indicate the intense inner heat of the sun while the black margins suggest eclipses surrounding the light, into which the suns continuously send their rays. Just as the wings of light are high wings so the Apollo butterfly is a high flyer. It cannot live in the meadows of the low-lying valleys, it must seek out the lofty heights of high mountain chains, the limestone and marble ridges of the Alps that in pre-historical times rose from the bottoms of some ancient seas, of the Carparthian mountains of the Balkan Peninsula and the Caucasus between the Black and the Caspian Seas. Here, amongst the limestone formations, grows its food plant, the modest perennial succulent *Sedum album,* known in German as "Fetthenne" or Fat Hen.

In the mating season, on warm days, the sexes find each other under grass sheaves and shrubbery and copulate. During the act of their nuptial consummation, from as yet unknown gland secretions of the male, a chitinous pouch is formed at the abdominal end of the female. The purpose of which has not yet been clarified, but it seems to be certain that such a female insect cannot mate again; a truly monogamous marriage. In weeks to come the female butterfly then scatters her shield-like eggs amongst the food

plants. Early the next spring the young larvae hatch under the snow, then crawl up on their food plants at sunny patches where the snow melts first. Later in the season the fully grown, dark-blue and red caterpillars, spin very loose parchment-like cocoons near the ground that looks as if sprinkled over with a fine limestone dust. By mid-July and the beginning of August the new, partially translucent Alpine sprite takes to the air amongst a retinue of bees and lesser mountain butterflies.

Once on a sunny morning in August the poet walked with a Franconian peasant girl who was driving her goats across the rock-strewn, calcareous "Jura" slopes. Enraptured he called her attention to a circling Apollo butterfly, gliding in a protracted flight. "Why," she called out, "that's only a Cabbage-White, there are so many of them on these slopes." "That's what happens to the great Parnassians," mused the poet, "their contemporaries take them for lowly plebeians, for very common folk." But then he thought of the beautiful legend that links these majestic flyers with the greatest Parnassian of all times, Homer. Seven Greek cities vied with one another for the honor of being his birth place, but none for the honor of his place of death. However, a young Greek from one of these cities so desirous for fame, Alexander by name, saw the immortal poet pass away on a forlorn rocky island in the Aegean Sea. Blind, tormented, tattered and torn, the ancient bard recited haltingly verses from his Iliad and Odyssey at the hour of his death. It was, stated Alexander, as if the god, Apollo himself, sang through him. After the last breath there sat on his partially opened lips a butterfly, fanning its tender wings, as if sucking in one last drop of sweetness. Those wings were translucent at the apex, blackish-white towards the center, with red, round sun spots on the hind wings. This dainty creature took to the air and flew away towards the setting evening sun. Was it the soul of the dead poet, Homer, returning to Mount Parnassus and to Apollo, the beloved favorite of the gods?—With these interrogative lines Friedrich Schnack closes his searching inquiry into the life and legend of *Parnassius apollo,* the elfin bearer of a very proud name.

IN REALITY

Of the various habitats of *P. apollo* mentioned by Schnack, the Bavarian Alps at the famous resort town of Berchtesgaden stand out most prominently. Here at the shores of the most magnificent of the Upper Bavarian lakes, the "Königssee," stands a little chapel adorned with three small dome-shaped spires, dedicated to Saint Bartholomaeus, one of the twelve apostles. To one side of it the steep ridges of the "Funtenseetauern" rise to an elevation of about 6,000 feet. On the other side towers the "Jenner" mountain up to a height of about 5,000 feet. In between these lofty peaks lies a filled in stretch of the "Königssee," about two miles long and a

quarter of a mile wide. This gap was formed in pre-historical times by a tremendous mountain slide, filling in part of the lake with billions of tons of calcareous rock composed of limestone and dark red marble. This section, at an elevation of about 2,000 feet above sea level, is the habitat and happy play ground of *P. apollo,* popularly known here as the butterfly of Saint Bartholomaeus.

During the summer months of July and August 1958 I spent three weeks at the resort of Berchtesgaden, determined to seek out and if possible, to bring back one or two specimens of this famous butterfly. Ever since my high school days in Germany I had wanted to possess a specimen in my collection. But I had lived in the east, in the province of Silesia, and *Parnassius apollo* flew only in the south of Germany. The distance in between was too great geographically and even more so financially. An Apollo butterfly could not even be bought for it was then and still is, protected by strict laws to save it from total extinction. In the summer of 1958, after almost five decades, my longing was rewarded, a boyhood dream had come true.

On July 25th of that year, on a very warm and sunny day, my older brother and I and our wives traversed the "Königssee" by motor launch and we came upon this filled in section, mentioned above, with small and large chunks of whitish boulders lying about, but also covered in profusion with blooming vegetation. Signs along the rocky trail warned all hikers that they were in the heart lands of a mountain sanctuary, that no flowers were to be picked and no insects to be caught. Some jokster sarcastically had pencilled in "not even the mosquitoes that bite you." Here truly was an insects' heaven. Bees and butterflies were everywhere. They flitted, darted, and skimmed in every direction. They even alighted on our shoulders and heads, as if they knew that collectors were out of bounds here. There were whites, sulphurs, browns, and blues; cosmopolites, tortoise and peacock butterflies. And then, just a few yards off the trail, our first Apollo butterfly! One could not possibly mistake it for a Cabbage-White for it was darker, larger, stronger, and did not flutter spasmodically like the rest of the tribe, but it circled elegantly and gracefully in a protracted flight around a good sized boulder, alighting on a flower near by. There was no holding me back now. Forgetting the meaning of sanctuary, out came my folding net and securing it quickly to my spiked cane, I sneaked up like a poacher on an unsuspecting game and with a fast swipe of my net I bagged my very first, real live Apollo. When I slipped it in the cyanide jar it almost got away from me again and only then did I realize how over-excited I was. The specimen was a male, undamaged but a little faded, perhaps an old-timer already. Now we knew we were on the right track but in spite of an intense search and a keen lookout we detected no further Apollos that warm, enchanting afternoon.

In the next five days inclement weather and other demands prevented us from returning. On the 31st of July, however, we decided to leave our wives in the beautiful resort park of Berchtesgaden and strike out once more for the "Apollo grounds." At noon, when we reached the shores of the "Königssee," we found the motor launch stations beleaguered by a tremendous crowd of sightseers from Munich. We would have had to wait for three long hours to be taken across the lake. So my brother and I decided to postpone our intentions and to search out some other regions, unknown to us. We took an open cable car up to the middle station of the "Jenner" mountain, an elevation of about 3,500 feet, and then we set out into virgin territory along a narrow mountain trail. We came upon densely wooded regions, to glens and grassy slopes. There were rocks, flowers, and butterflies in great abundance, but no Apollos amongst them. Once more we traversed a wooded pine section and came upon a large grassy slope with the now familiar whitish limestone boulders. Before one's eyes could become accustomed to the bright sunshine and the expanse of this slope we sighted a gliding Apollo, then another one and one more. We did not know what to say, we were simply speechless. By sheer luck and intuition we had discovered for ourselves a veritable "Apollo playground." There were butterflies of all descriptions and of all colors about, amongst them the red and blue Zygaenas, the alpine Sulphurs, rare Frittilaries and of course, various Cabbage-Whites. But the stately Apollos, whenever they appeared, predominated over this unique landscape.

By now I had spoken to a member of the so called "Alpine Watch," the forest rangers of this sanctuary and he had told me that a few specimens, taken by a bona fide collector for educational purposes, would not matter for "we have so many butterflies and other insects around" I felt no qualms in selecting a few of these apollonian creatures for posterity. However, the slopes on either side of the narrow trail rose sharply and descended precipitously. Lone Apollos kept gliding past the trail, sometimes circling about, alighting on flowers here and there along the rocky path. Our patience and eagerness were taxed to the breaking point but, biding our time we were able to take our toll of a few undamaged specimens, males and females alike.

The next day, on the first of August, we returned once more to this isolated region where the Apollos played in worldly seclusion. We simply had to let our wives in on our secret discovery, for they were just as great butterfly enthusiasts as we were. But this was rugged territory and demanded stout souls. Although the sun beat down from a cloudless sky, the heat was not felt too severely at this altitude of over 3,500 feet. Our wives proved to be good sports and mountaineers and for that they were richly compensated. *Parnassius apollo* seemed to have had a field-day on that August afternoon. There were more of them around than the day

before and all of them in their best attire. They probably just had hatched that warm, cosy morning. One specimen, somewhat larger and darker, with its sun spots burning redder, had caught my eye. Flying low along the trail, here and there hovering over a flower, it glided down the slope a few yards and settled on a long-stemmed Marguerite flower in a small patch of mountain Campanulas or bell flowers.

Since, according to Professor Comstock, "There is something strange about the madness which possesses one hunting for species" (Comstock, 1936), I recklessly ventured down the incline and netted the provoking gossamer creature. In this attempt I slipped badly, landing quite hard on my posterior. At this very moment three shrill, sharp whistles resounded across the landscape. My thoughts were instantly that an alpine guardsman had piped me down but I was stubbornly determined not to let go of my precious catch, not for a whole squad of alpine foresters. But the loud whistles had come from further down the slope, from a pile of rocks, and there was no one to be seen, far and wide, except our own party. My wife was the first one to solve the riddle. Having excellent eyesight she had spotted an alpine marmot, a type of ground-hog, atop that rock pile, which had warned its young ones of approaching danger. She saw them scamper off to safety amongst the big boulders. Much amused about this experience we turned our footsteps down-trail for we knew the road back was long and stony. We came upon a small mountain brook, the "Königsbach," from which the entire region took its name, "Königsbach Alm." We followed the little stream to some extent, refreshed by its crystal-clear cold water but much fatigued nevertheless. Late in the evening we reached the shores of the "Königssee" and settled down to a hearty evening meal at the inn overlooking the lake with the dark shadows of the towering mountain ridges upon it.

Talking over our common experiences and taking our geographical and geological bearings, belatedly, we figured that the "Königsbach Alm," our "Apollo slope," was in the same latitude as the limestone gap at the far end of the "Königssee" where we had sighted and caught our first *Parnassius apollo*. This slope is a continuation of the calcareous ridges that extend from the "Funtenseetauern," across the filled in gap between "Königssee" and "Obersee," bridging densely covered timberland, and finally reaching up the "Jenner" mountain side to the great declivity of the "Königsbach Alm." This limestone and marble region, as well as the entire alpine range, is geographically speaking "arctic tundra" and, to quote Professor Klots, ". . . when the (last) ice sheets retired northward, (some 20,000 years ago), . . . arctic forms either followed them closely and repopulated the arctic, or else remained as isolated populations in the arctic climate of the high mountains. It has been calculated that climatically an ascent of 125 metres (420 feet) on a mountain is the equivalent of northward travel of

one degree of latitude or about 69 and one half miles. The alpine populations are, then, the 'cousins' of the arctic populations, existing as relicts of the former southward extensions of the arctic. Many similar relict populations are also found at lower elevations, for some of the ancient arctic forms became partially adapted to a warmer climate; these often betray their arctic origin by still feeding upon plant relicts of northern origin or by activity during cold seasons when the true southern populations are hibernating.'' (Klots, McGraw-Hill).

A relict of the arctic and of a bygone age, that is what our *Parnassius apollo* of Saint Bartholomaeus really is. Truly this butterfly is as unique in its lofty retreat and environment as the little mountain chapel of Saint Bartholomaeus with its three dome-shaped spires, a landmark at the shores of the magnificent lake, ''Königssee,'' in Upper Bavaria.

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